

PATENT**REMARKS**

Claims 1-21 are currently pending in this application. Claims 1, 9, 10 and 11 have been amended. New claims 12-21 have been added. No new matter has been added by these amendments or additions. Applicant has carefully reviewed the Office Action and respectfully requests reconsideration of the claims in view of the remarks presented below.

Claim Objections

Claim 1 and 11 were objected to for informalities. Claim 1 has been amended to remove the Automatic Mode Switching feature. Regarding the Examiner's inquiry as to whether the enabling and disabling of the AMS determines how the atrial rate is obtained, Applicant believes claim 2 clarifies the function of AMS in the atrial rate determination process. Claim 11 has been amended to correct the typographical error indicated in the Office Action.

Claim Rejections Under 35 U.S.C. §103

Claims 1-11 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,128,533 (Florio) in view of U.S. Patent No. 6,711,438 (McClure).

Independent claims 1, 9, 10 and 11 relate to methods and devices for determining atrial rates using combipolar sensing logic involving atrial and ventricular events sensed within the atrial and ventricular refractory periods as well as outside the refractory periods. For example, method claim 1 recites sensing ventricular channel signals using unipolar sensing; sensing atrial channel signals using combined unipolar/bipolar sensing; tracking refractory periods within both the atrial and ventricular channel signals; and determining an atrial rate using combined unipolar/bipolar sensing logic applied to atrial and ventricular events sensed within the atrial and ventricular refractory periods as well as to atrial and ventricular events sensed outside the refractory periods.

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Florio describes two different types of atrial rate measurements: an intrinsic or actual atrial rate, which is determined using all of the P-waves detected in a sensed atrial signal, and a sensed functional atrial rate (described as being less than the intrinsic/actual atrial rate), which is determined using only P-waves detected in a sensed atrial signal that are outside refractory periods. See column 7, lines 12-21 and 40-49. It is significant that both the intrinsic/actual rate and sensed functional atrial rate are determined using only P-waves detected in atrial signals and that the use of detected ventricular events in the atrial signal or detected ventricular events in a ventricular signal, for measurement of atrial rates, is neither taught nor suggested by Florio.

McClure discloses atrial rate determination techniques that are based only on portions of sensed atrial channel signals. In particular, it discloses determining atrial rate using only events detected outside of the PVARP thus ignoring any T-waves that may be present in the atrial signal (column 3, lines 57-61); determining atrial rate using all events in the atrial signal including those that occur during PVARP (column 4, lines 23-32); and detecting events in the atrial signal that occur during PVARP except for those that occur during a T-wave blanking window (column 4, lines 43-52). It is noted that while McClure discloses combipolar sensing as a means to obtain an atrial channel signal, it does not disclose combipolar sensing logic based on both atrial and ventricular events detected in respective atrial and ventricular sensed channels.

In view of the foregoing, Applicant submits that neither Florio nor McClure teach or suggest determining an atrial rate using combined unipolar/bipolar sensing logic applied to atrial and ventricular events sensed within the atrial and ventricular refractory periods as well as to atrial and ventricular events sensed outside the refractory periods, as included in independent claims 1, 9, 10 and 11. Accordingly, Applicant requests reconsideration of the §103 rejections of these claims and their respective dependent claims.

PATENT**New Claim 12-21**

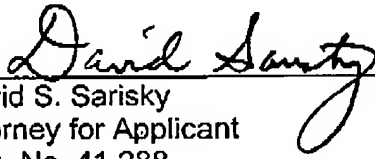
New claim 12-21 recite additional features related to the atrial rate determination method of claim 1 and device of claim 9. Neither Florio nor McClure discloses the features of these claims.

CONCLUSION

Applicant has made an earnest and bona fide effort to clarify the issues before the Examiner and to place this case in condition for allowance. Therefore, allowance of Applicant's claims 1-21 is believed to be in order.

Respectfully submitted,

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Date


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